

Erin De Pree, Ph.D.

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Data Scientist | Machine Learning Engineer | Physicist

Data scientist and problem solver with a Ph.D. in physics and experience bridging technical expertise with stakeholder engagement. Skilled in machine learning, neural networks, data analysis, and scientific research. Experienced educator and mentor, adept at translating complex concepts for diverse audiences and driving measurable impact through solutions that are statistically likely to succeed.

Skills

- **Data Analysis and Visualization:** Exploratory data analysis, Analytical skills, Pandas, NumPy, Matplotlib, Seaborn, Plotly, Dash
- **Machine Learning/AI:** Supervised/unsupervised learning, neural networks, TensorFlow, Keras, Scikit-Learn
- **Advanced Math:** Differential equations, linear algebra, group theory, predictive modeling
- **Tools & Languages:** Python, SQL (SQLite, TAP), Mathematica, LaTeX, Google Colab, Jupyter Lab, Hugging Face
- **Professional Skills:** Mentorship, stakeholder engagement, team leadership, problem solving

Professional Experience

Bates College, Lewiston, Maine

2022 – 2025

Visiting Associate Professor of Physics

Supported faculty during high turnover, taught a range of courses from introductory physics to quantum mechanics, and mentored students and new faculty.

- Mentored new faculty as they adjusted to Bates.
- Supported new faculty onboarding and curriculum integration, enhancing departmental cohesion

Astrometry of Double Stars | http://www.jds.org/volume20/number4/DePree_503_510.pdf

- Discovered a third star close enough to potentially form a binary star pair with one of the original stars.
- Measured positions of double stars (appear close together in the sky) and compared with historic data to determine if the system is gravitational bound together or happens to appear close together
- Mentored 5 undergraduate theses resulting in a peer-reviewed paper to be published early next year

St. Mary's College of Maryland, St. Mary's City, Maryland

2008 – 2022

Associate Professor of Physics

Chair of the Physics Department, 2020 – 2021

- Led departmental initiatives, developed courses, and implemented programs to improve student success and research participation.
- Created a 10-part career program that helps students explore post-college options resulting in an increase of student research participation from 60% to 95%.
- Improved learning environment by developing an in-class inclusion and anti-bullying workshop, dramatically increased graduation rates among underrepresented groups in physics.
- Developed a semester-long computer programming course to solve a range of physics problems using Mathematica which was self-taught.
- Mentored 30 research students resulting in over ten conference presentations

Physics Majors and Minors Database

Compiled complete list of physics majors and minors, both currently enrolled and alumni, track alumni's current work place. Plotted graduates per year with a 5-year running average, tracked department award winners, pivot tables of alumni characteristics.

Certifications

Data Science Bootcamp

Awarded: September 10, 2025

General Assembly

Completed an intensive 12-week program building end-to-end data science projects while refining machine learning, Python, and data visualization skills. Projects Include:

Spotting Fake Job Ads (Capstone) | https://github.com/erindepree/fake_job_ads

Developed multiple machine learning models to detect fake job ads, achieving 92% classification accuracy and actionable insights for automated screening.

Classifying Kidney Images Using Neural Networks | <https://github.com/erindepree/kidney-neural-net>

Built a convolutional neural network with 38,000+ trainable parameters and exponential learning rate decay, achieving 90%+ accuracy, precision, recall, and F1-score.

Skills Applied

Python (Pandas, NumPy, scikit-learn, Keras), data cleaning, feature engineering, exploratory data analysis, visualization (Plotly, Matplotlib).

Google Advanced Data Analytics

In process

Coursera

Estimated completion in December 2025

Certified Analytics Professionals (CAP) – Pro Certification

Exam completed

INFORMS

Results expected in late December 2025

Education

Doctor of Philosophy (Ph.D.), Physics

The College of William & Mary, Williamsburg, Virginia

Master of Science (M.S.), Physics

The College of William & Mary, Williamsburg, Virginia

Bachelor of Science (B.S.), Physics and Mathematics majors

Hillsdale College, Hillsdale, Michigan

- Graduated *summa cum laude* (with highest honors), Honors Program participant
- Awards: Outstanding Physics Senior Major, Taylor Mathematics Prize
- Academic honoraries: Sigma Pi Sigma (physics), Kappa Mu Epsilon (mathematics), Sigma Zeta (natural sciences and mathematics)